

Computer Science Seminar

In-App Behavior Analysis

Dr. Yanjie Fu

Missouri S&T



The rapid adoption of mobile messaging Apps has enabled us to collect massive amount of encrypted Internet traffic of mobile messaging. The classification of this traffic into different types of in-App service usages can help for intelligent network management, such as managing network bandwidth budget and providing quality of services. Traditional approaches for classification of Internet traffic rely on packet inspection, such as parsing HTTP headers. However, messaging Apps are increasingly using secure protocols, such as HTTPS and SSL, to transmit data. This imposes significant challenges on the performances of service usage classification by packet inspection.

To this end, we investigate how to exploit encrypted Internet traffic for classifying in-App usages. We demonstrate two preliminary studies. In the first study, we develop a four-step framework including traffic segmentation, traffic feature construction, ensemble traffic classification, outlier detection and handling. In the second study, we proposed another alternative method by formulating the task as a probabilistic multi-view multi-label classification problem. Finally, the extensive experiments on real-world messaging data demonstrate the effectiveness and efficiency of the proposed method for in-App service usage analysis.

Bio: Dr. Yanjie Fu received his Ph.D. degree from Rutgers Business School, Rutgers University in 2016, the B.E. degree in Computer Science from University of Science and Technology of China in 2008, and the M.E. degree in Computer Engineering from Chinese Academy of Sciences in 2011. He is currently an Assistant Professor at the Missouri University of Science and Technology.

Dr. Fu's general interests are data mining and big data analytics. His recent research focuses on applying collective learning, probabilistic modeling, and text mining on big data problems including urban computing, human mobility modeling, wireless intelligence, recommender systems, consumer analytics, and health care. He has published prolifically in refereed journals and conference proceedings, such as IEEE TKDE, ACM TKDD, IEEE TMC, Decision Support Systems, ACM SIGKDD, and IEEE ICDM.

Date: February 27, 2017

Time: 10:00 am

209 Computer Science Building

